

REMARKS

In accordance with the foregoing, new claims 34-59 are presented. No new matter is being presented, and approval and entry of the new claims are respectfully requested.

Claims 1, 3-9, 11-19, 21-22, and 24-32 are cancelled herein without prejudice or disclaimer.

Claims 34-59 are pending and under consideration.

NEW CLAIMS

New claims 34-59 recite features of the present invention in an alternate fashion.

New independent claims 34 and 43 respectively recite an authentication apparatus and a computer-readable storage medium, using claim 34 as an example, including "a measuring part configured to measure biometric information of an individual; a converting part configured to carry out a predetermined conversion process with respect to the biometric information so as to obtain converted biometric information; an extracting part configured to extract feature information from the converted biometric information so as to obtain extracted feature information; and a verifying part configured to verify the extracted feature information with respect to registered information which is registered in advance, by comparing the extracted feature information and the registered information, so as to authenticate the individual."

Support for new claims 34-46 is found for example in FIG. 1A and supporting description of the present application. In addition, new claims 34-41 correspond to original claims 1-8, new claim 42 corresponds to original claims 18 and 19, and new claims 43-46 correspond to the original claims 19-21 and 25.

New independent claims 47 and 56 respectively recite an authentication apparatus including "a measuring part configured to measure biometric information of an individual; an extracting part configured to extract feature information from the biometric information so as to obtain extracted feature information; a converting part configured to carry out a predetermined conversion process with respect to the extracted feature information so as to obtain converted extracted feature information; and a verifying part configured to verify the converted extracted feature information with respect to registered information which is registered in advance, by comparing the converted extracted feature information and the registered information, so as to authenticate the individual."

Support for new claims 47-59 is found for example in FIG. 1B and supporting description of the present application. In addition, new claims 47-54 correspond to original

claims 9-16, new claim 55 corresponds to original claims 17 and 18, and new claims 56-59 correspond to the original claims 22-25.

In the current Office Action the Examiner rejected claims 1-32 under 35 U.S.C. §103(a) as being unpatentable over Kanevsky (U.S.P. 6,092,192) in view of combinations of Strait (U.S.P. 6,038,315) and Priddy (U.S.P. 5984,366).

I. Applicants submit that Kanevsky does not teach features as recited by claims 34-46, as illustrated for example, in FIG. 1A, since according to such a first aspect of the present invention, a "conversion" is carried on before an "extraction."

Instead, Kanevsky teaches extracting a biometric attribute from a user and encrypting and decrypting of the extracted biometric attribute. That is, Kanevsky "extracts" the biometric attribute before "encrypting" the extracted biometric attribute.

Kanevsky teaches (see, for example, col., lines 15-19 and col. 5, lines 10-11) that it is essential to "decrypt" the encrypted extracted biometric attribute before comparison with a previous sample (that is, stored extracted biometric attribute). However, if the encrypted, extracted biometric attribute is decrypted for the comparison, the decrypted biometric attribute may be leaked to a third party and the original biometric information stolen.

Further, Kanevsky does not teach or suggest features as recited by claims 47-59. According to a second aspect of the present invention as recited in claims 47-59, as illustrated for example in FIG. 1B, the converted extracted feature information and the registered information are compared for the verification. In other words, the converted extracted feature information and the registered information are not subjected to a conversion (that is, not converted back to the non-converted feature information) for the comparison.

Accordingly, even if the converted extracted feature information or the registered information leaks to a third party, the feature information in the converted form will positively prevent the original biometric information from becoming stolen.

II. Strait teaches measuring biometric information and processing the measured biometric information. However, Strait merely teaches (see, for example abstract) obtaining an exclusive-OR of the measure biometric information and a random codeword to produce a reference value. To verify the individual, a biometric measurement is taken and exclusive-ORed with the "reference value" to reproduce the "original random codeword" or its approximation. Hence, Strait teaches that it is essential to carry out the "exclusive-OR" operation between the measured biometric information and the reference value (that is, registered information) in order

to make the verification.

Strait does not teach carrying out a comparison according to aspects of the present invention in order to make the verification.

As recited by claims 34-46, according to the first aspect of the present invention as shown in FIG. 1A, a verification is made by simply comparing the extracted feature information (extracted from the converted biometric information) and the registered information. That is, there is no need to subject the extracted feature information nor the registered information to an operation in order to make the verification.

Similarly, as recited by claims 47-59, according to the second aspect of the present invention shown in FIG. 1B, the verification is made by simply comparing the converted extracted feature information (converted after extraction from the biometric information) and the registered information. That is, there is no need to subject the converted extracted feature information nor the registered information to an operation in order to make the verification.

III. Priddy teaches decoding encoded biometric data for comparison with set data to make a verification. However, Priddy teaches (see, for example, abstract), that it is essential to "decode" the encoded biometric information before comparison with the set data. However, if the encoded biometric information is decoded for the comparison, the decoded biometric information may leak to a third party and the original biometric information may be stolen.

As recited by claims 34-46, according to the first aspect of the present invention as shown in FIG. 1A, the extracted feature information (extracted from the converted biometric information) and the registered information are compared for the verification.

In other words, the extracted feature information and the registered information are not subjected to a conversion (that is, not converted back to the non-converted feature information) for the comparison. For this reason, even if the extracted feature information or the registered information leaks to a third party, the feature information in the converted form will positively prevent the original biometric information from becoming stolen.

Furthermore, as recited by claims 47-59 according to a second aspect of the present invention, e.g., as illustrated in FIG. 1B the converted extracted feature information (converted after extraction from the biometric information) and the registered information are compared for the verification. In other words, the converted extracted feature information and the registered information are not subjected to a conversion (that is, not converted back to the non-converted feature information) for the comparison.

Accordingly, even if the converted extracted feature information or the registered information leaks to a third party, the feature information in the converted form will positively prevent the original biometric information from becoming stolen.

IV. Applicants submit that even *arguendo* combinations of the art previously relied on does not teach or suggest features claims 34-59.

These, and other, features of claims 34-59 patentably distinguish over the art previously relied on by the Examiner, and they are submitted to be allowable for the recitations therein.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date:

May 15, 2006

By:

Paul W. Bobowiec

Paul W. Bobowiec

Registration No. 47,431

1201 New York Avenue, NW, 7th Floor
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501